

$^{179}\text{Hf}(\alpha, t), (^3\text{He}, d)$ 1983Wa01

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan		NDS 126, 151 (2015)	1-Feb-2015

$J^\pi(^{179}\text{Hf})=7/2^+$.

$E(\alpha)=62.2$ MeV. Measured $\sigma(\theta)$ at $\theta=10^\circ$ and 15° using magnetic spectrometer and 50 cm long multiwire proportional counter ($\text{FWHM} \leq 25$ keV). $E(d)=36$ MeV. Measured $\sigma(\theta)$ at $\theta=15^\circ$ and 35° using magnetic spectrometer and position sensitive telescope with three resistive wire proportional counters ($\text{FWHM}=20-40$ keV).

[Additional information 1.](#)

^{180}Ta Levels

E(level) [†]	J^π [‡]	L [#]	Comments
0.0 [@]	(1 ⁺)		
40 [@]	(2 ⁺)		
82 ^{&}	(9 ⁻)		
134			Complex peak. Possible components: $J^\pi=3^+$, configuration=(($\pi/2[404]$)-($\nu/2[624]$)); and $J^\pi=1^-$, configuration=(($\pi/2[514]$)-($\nu/2[624]$)).
181	4		Complex peak. Possible components: $J^\pi=8^+$, configuration=(($\pi/2[404]$)+($\nu/2[624]$)); $J^\pi=2^-$, configuration=(($\pi/2[514]$)-($\nu/2[624]$)); and $J^\pi=4^+$, configuration=(($\pi/2[404]$)-($\nu/2[624]$)).
235 ^a	(3 ⁻)		
285 ^{&}	(10 ⁻)		Complex peak at 296 keV (L=2) in ($^3\text{He}, d$).
320 ^a	(4 ⁻)		Complex peak. Possible contamination from 482-keV level in ^{181}Ta .
361 ^b	(7 ⁺)	2	
426 ^a	(5 ⁻)	2	Complex peak. Possible contamination from 615- and 619-keV levels in ^{181}Ta .
563			Complex peak. Possible components: $J^\pi=2^+$, configuration=(($\pi/2[402]$)-($\nu/2[624]$)); $J^\pi=6^-$, configuration=(($\pi/2[514]$)-($\nu/2[624]$)); and $J^\pi=8^+$, configuration=(($\pi/2[402]$)+($\nu/2[624]$)).

[†] From (α, t).

[‡] Authors made spin, parity, and configuration assignments on the bases of a comparison between experimental and theoretical cross sections for each reaction separately, on the comparison between $\sigma(\alpha, t)/\sigma(^3\text{He}, d)$ experimental and theoretical ratios, and on rotational structure with Coriolis coupling included.

[#] From comparison of measured angular distributions in ($^3\text{He}, d$) with DWBA calculations.

[@] $K^\pi=(1^+)$ rotational band probable configuration=(($\pi/2[404]$)-($\nu/2[624]$)).

[&] $K^\pi=(9^-)$ rotational band probable configuration=(($\pi/2[514]$)+($\nu/2[624]$))).

^a $K^\pi=(0^-)$ rotational band probable configuration=(($\pi/2[514]$)-($\nu/2[624]$))).

^b $K^\pi=(7^+)$ rotational band probable configuration=(($\pi/2[402]$)+($\nu/2[624]$))).